

SMT Power Inductors

Round Wire Coils- PG0936NL series



- Inductance Range: 0.47uH to 25.0uH
- Current Rating: up to 40Apk
- Footprint: 17.5mm x 16.7mm Max
- Height: 10.0mm Max
- No Thermal Aging



Electrical Specifications @ 25°C – Operating Temperature -40°C to +130°C¹

Part Number	Inductance ² @ Irated (μ H Typical)	Irated ³ (A)	Controlled Electrical Specs.		Saturation ⁵ Current Isat (A TYP)		Heating Current ⁶ Idc (A TYP)	Core Loss Factor ⁷ (K2)
			DCR ⁴ (m Ω) MAX	Inductance @ 0Adc (μ H \pm 20%)	25°C	100°C		
PG0936.471NL	0.47	40	0.87	0.47	80	65	40	20.0
PG0936.681NL	0.60	40	0.87	0.68	62	48	40	29.0
PG0936.851NL	0.74	40	0.87	0.85	50	40	40	36.3
PG0936.162NL	1.4	31	1.5	1.6	36	30	31	45.5
PG0936.282NL	2.5	24	2.2	2.8	28	23	24	59.8
PG0936.452NL	3.6	22	2.9	4.5	22	18	22	76.9
PG0936.682NL	5.4	18	3.5	6.8	18	15	21	96.8
PG0936.113NL	8.8	14	7.0	11.0	14	11.5	14	117.5
PG0936.183NL	15.4	9.8	13.8	18.0	11	9	9.8	153.8
PG0936.253NL	23.5	7.0	19.4	25.0	9.2	8	7.0	178.0

Notes:

1. Actual temperature of the component during system operation (ambient plus temperature rise) must be within the standard operating range.
2. Inductance at I_{rated} is a typical inductance value for the component taken at rated current.
3. The rated current as listed is either the saturation current (@ 25°C) or the heating current depending on which value is lower.
4. The DCR of the part is measured at an ambient temperature of $20^{\circ}\text{C} \pm 3^{\circ}\text{C}$ from point a to b as shown below on the mechanical drawing.
5. The saturation current, I_{sat} , is the current at which the component inductance drop by 20% (typical) at an ambient temperature. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effect) to the component.
6. The heating current, I_{dc} , is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the components' performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.

- Core loss approximation is based on published core data:
$$\text{Core Loss} = K1 * (f)^{1.72} * (K2\Delta l)^{2.41} \text{ in mW}$$

$$K1 = 8.68E-10$$

$$f = \text{switching frequency in KHz}$$

$$K1 \& K2 = \text{core loss factors}$$

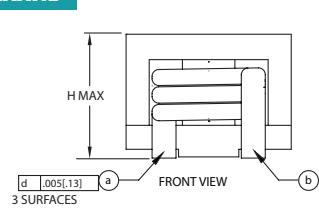
$$\Delta l = \text{delta } l \text{ across the component in Ampere}$$

$$K2\Delta l = \text{one half of the peak to peak flux density across the component in Gauss}$$
- Unless otherwise specified, all testing is made at 100kHz, 0.1Vac
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PG0936.682NL becomes PG0936.682NLT). Pulse complies with industry standard tape and reel specification EIA481. The tape and reel for this product has a width (W=32.0mm), pitch (P0=24.0mm) and depth (K0=10.8mm).
- The core is a conductive material so care should be taken when mounting this component over an exposed via or if the voltage across the terminals exceeds 24V. Trickle current through the core material may generate additional losses and potential overheating. Please contact Pulse to discuss an alternative solution if required.

Mechanicals

Schematics

PG0936.XXXNL

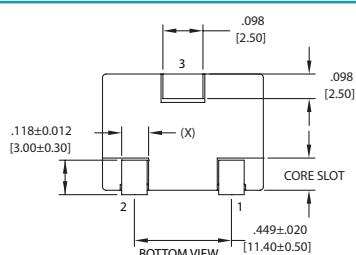
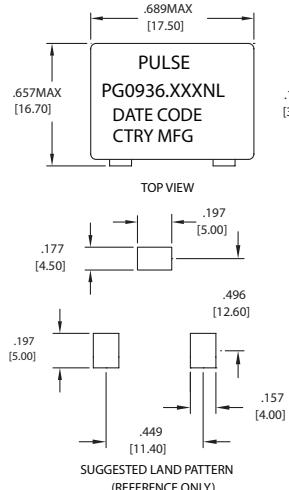


Weight..... 9.8 grams
Tape and Reel..... 200/tray

Inches

Dimensions: inches
mm

Unless otherwise specified, all tolerances are $\pm \frac{.010}{.025}$



PIN3 IS MECHANICAL SUPPORT ONLY
HAS NO INTERNAL ELECTRICAL CONNECTION

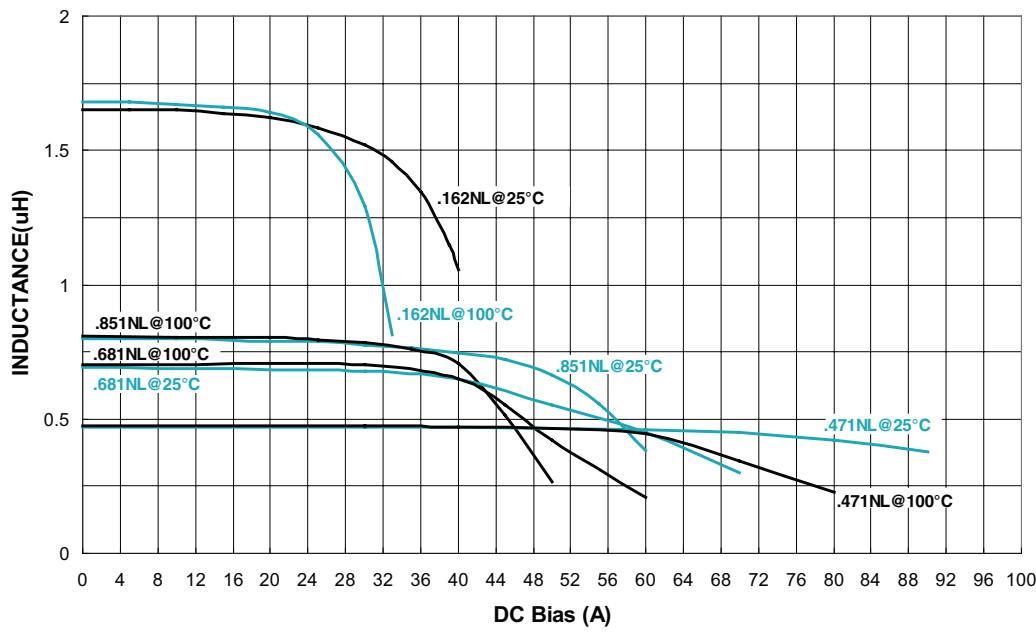
PART NUMBER	X (±0.5)	Height H
PG0936.471NL	2.5	
PG0936.681NL	2.5	.315[8.0]
PG0936.851NL	2.5	
PG0936.162NL	2.5	
PG0936.282NL	2.5	
PG0936.452NL	2.5	
PG0936.682NL	2.5	.394[10.0]
PG0936.113NL	1.4	
PG0936.183NL	1.4	
PG0936.253NL	1.4	

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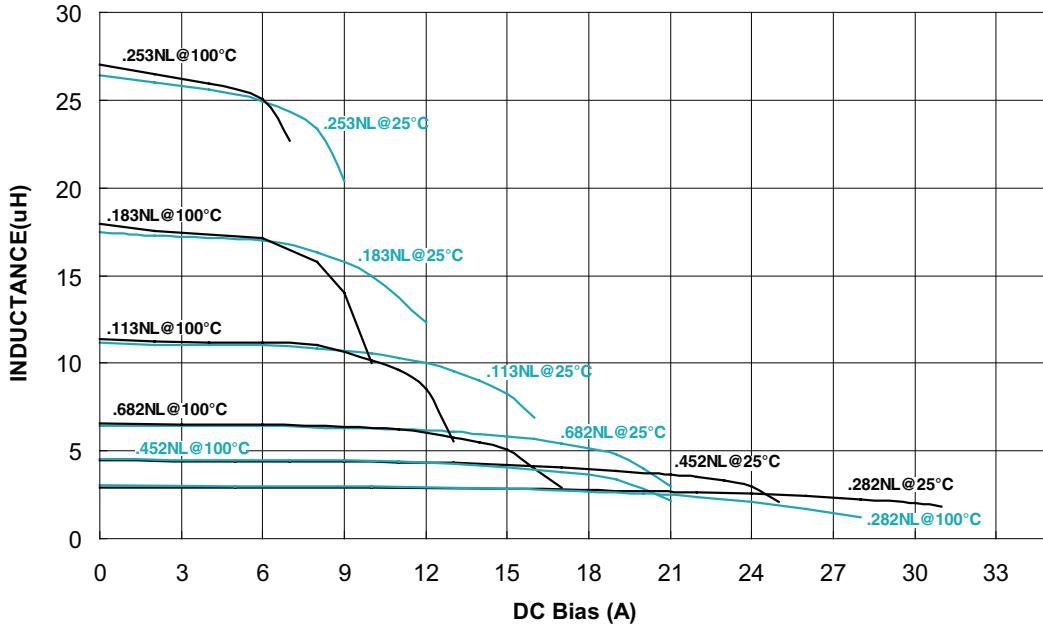
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Typical Inductance vs DC Bias



Typical Inductance vs DC Bias



For More Information

Pulse Worldwide Headquarters
15255 Innovation Drive Ste 100
San Diego, CA 92128
U.S.A.

Pulse Europe
Pulse Electronics GmbH
Am Rottland 12
58540 Meinerzhagen
Germany

Pulse China Headquarters
Pulse Electronics (ShenZhen) CO., LTD
D708, Shenzhen Academy of
Aerospace Technology,
The 10th Keji South Road,
Nanshan District, Shenzhen, P.R.
China 518057

Pulse North China
Room 2704/2705
Super Ocean Finance Ctr.
2067 Yan An Road West
Shanghai 200336
China

Pulse South Asia
135 Joo Seng Road
#03-02
PM Industrial Bldg.
Singapore 368363

Pulse North Asia
3F, No. 198
Zhongyuan Road
Zhongli City
Taoyuan County 32068
Taiwan

Tel: 858 674 8100
Fax: 858 674 8262

Tel: 49 2354 777 100
Fax: 49 2354 777 168

Tel: 86 755 33966678
Fax: 86 755 33966670

Tel: 86 21 62787060
Fax: 86 2162786973

Tel: 65 6287 8998
Fax: 65 6280 0080

Tel: 886 3 4356768
Fax: 886 3 4356823

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